

(a) a structural lentiviral vector system comprising a first lentiviral vector that encodes a structural gene selected from a gag gene, a pol gene or both gag and pol genes; and

(b) a regulatory lentiviral vector comprising a rev gene, wherein the regulatory lentiviral vector is provided on a separate construct from the structural lentiviral vector system.

9. (NEW) The lentiviral packaging system of claim 8, wherein the regulatory lentiviral vector further comprises a heterologous regulatory element operably linked to the rev gene.

10. (NEW) The lentiviral packaging system of claim 9, wherein the heterologous regulatory element comprises a RSV U3 or a herpes simplex virus thymidine kinase (HSVtk) promoter.

11. (NEW) The lentiviral packaging system of claim 8, wherein the first lentiviral vector comprises a gag gene, and the structural lentiviral vector system further comprises a second lentiviral vector that encodes a pol gene.

12. (NEW) The lentiviral packaging system of claim 8, wherein the first lentiviral vector comprises a pol gene, and the structural lentiviral vector system further comprises a second lentiviral vector that encodes a gag gene.

13. (NEW) The lentiviral packaging system of claim 8, wherein the structural lentiviral vector system further comprises a regulatory response element (RRE) downstream of the structural gene.

14. (NEW) The lentiviral packaging system of claim 8, wherein the structural lentiviral vector system further comprises a heterologous regulatory element operably linked to the structural gene.

15. (NEW) The lentiviral packaging system of claim 14, wherein the heterologous regulatory element comprises a CMV promoter.

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16. (NEW) The lentiviral packaging system of claim 8, which lacks a functional tat gene.
17. (NEW) The lentiviral packaging system of claim 16, wherein the tat gene is deleted.
18. (NEW) The lentiviral packaging system of claim 16, wherein the tat gene is mutated.
19. (NEW) The lentiviral packaging system of claim 8, which lacks a functional HIV env gene.
20. (NEW) The lentiviral packaging system of claim 8, further comprising a viral env gene that is derived from a different virus than the structural genes.
21. (NEW) The lentiviral packaging system of claim 20, wherein the env gene is provided on a vector other than the first lentiviral vector.
22. (NEW) The lentiviral packaging system of claim 8, which lacks functional vif, vpr, vpu and nef genes.
23. (NEW) The lentiviral packaging system of claim 8, wherein the lentivirus is human immunodeficiency virus (HIV).
24. (NEW) The lentiviral packaging system of claim 23, wherein the HIV is HIV-1.
25. (NEW) A lentiviral vector system comprising the lentiviral packaging system claim 8, and a lentiviral transfer vector comprising a heterologous gene operably linked to a regulatory element.
26. (NEW) The lentiviral vector system of claim 25, wherein the lentiviral transfer vector comprises a 5' LTR and a 3' LTR, each of which contains a U3 region,  
wherein the regulatory element is a heterologous regulatory element operable in a mammalian cell,

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CDU4

wherein a part or all of a regulatory element of the U3 region of the 5' LTR is replaced by the heterologous regulatory element, and

wherein a part or all of the U3 region of the 3' LTR is replaced by a heterologous inducible regulatory element that is activated only in the presence of an activator expressed in trans.

27. (NEW) The lentiviral vector system of claim 25, wherein the heterologous inducible regulatory element comprises a tet operator.

28. (NEW) The lentiviral vector system of claim 27, wherein the heterologous inducible regulatory element comprises seven copies of a tet operator (tet<sup>o7</sup>).

29. (NEW) The lentiviral vector system of claim 28, wherein the tet<sup>o7</sup> is linked to a part of the 3' HIV U3 region that comprises a TATA box sequence.

30. (NEW) A method of producing a recombinant lentivirus comprising:

- (a) transfecting a packaging host cell with:
    - (i) a lentiviral transfer vector comprising a heterologous gene operably linked to a regulatory element; and
    - (ii) a lentiviral packaging system of claim 8; and
  - (b) recovering the recombinant lentivirus produced by the transfected packaging host cell.
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